



SPP3413

P-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPP3413 is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits where high-side switching , and low in-line power loss are needed in a very small outline surface mount package.

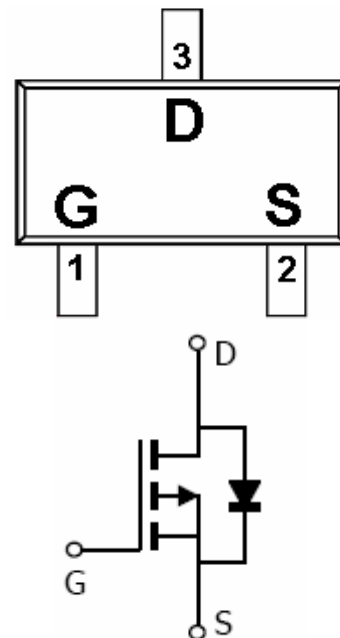
FEATURES

- ◆ $-20\text{V}/-3.4\text{A}, R_{\text{DS(ON)}} = 95\text{m}\Omega @ V_{\text{GS}} = -4.5\text{V}$
- ◆ $-20\text{V}/-2.4\text{A}, R_{\text{DS(ON)}} = 120\text{m}\Omega @ V_{\text{GS}} = -2.5\text{V}$
- ◆ $-20\text{V}/-1.7\text{A}, R_{\text{DS(ON)}} = 145\text{m}\Omega @ V_{\text{GS}} = -1.8\text{V}$
- ◆ $-20\text{V}/-1.0\text{A}, R_{\text{DS(ON)}} = 210\text{m}\Omega @ V_{\text{GS}} = -1.25\text{V}$
- ◆ Super high density cell design for extremely low $R_{\text{DS(ON)}}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23-3L package design

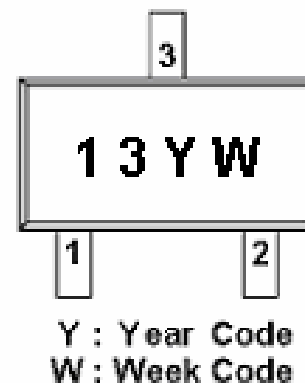
APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

PIN CONFIGURATION(SOT-23-3L)



PART MARKING





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PIN DESCRIPTION

Pin	Symbol	Description
1	G	Gate
2	S	Source
3	D	Drain

ORDERING INFORMATION

Part Number	Package	Part Marking
SPP3413S23RG	SOT-23-3L	13YW

※ Week Code : A ~ Z (1 ~ 26) ; a ~ z (27 ~ 52)

※ SPP3413S23RG : Tape Reel ; Pb – Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V _{DSS}	-20	V
Gate –Source Voltage		V _{GSS}	±12	V
Continuous Drain Current(T _J =150°C)	T _A =25°C	I _D	-3.5	A
	T _A =70°C		-2.8	
Pulsed Drain Current		I _{DM}	-15	A
Continuous Source Current(Diode Conduction)		I _S	-1.4	A
Power Dissipation	T _A =25°C	P _D	1.25	W
	T _A =70°C		0.8	
Operating Junction Temperature		T _J	-55/150	°C
Storage Temperature Range		T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient		R _{θJA}	105	°C/W



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ELECTRICAL CHARACTERISTICS

(T_A=25°C Unless otherwise noted)

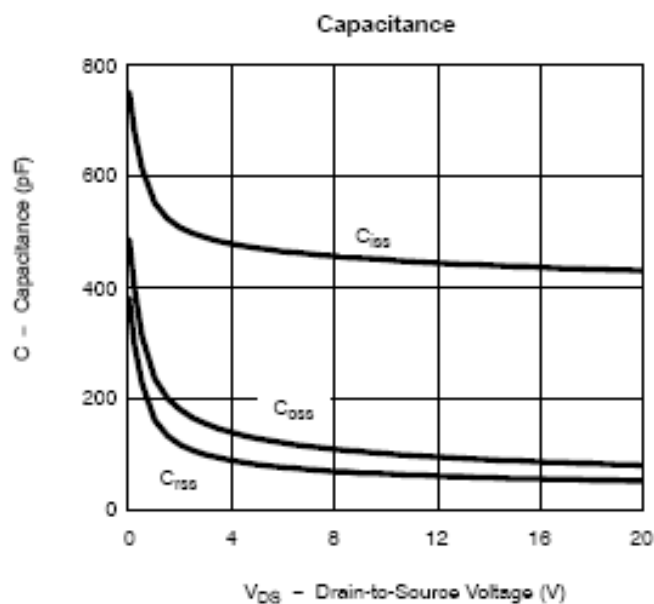
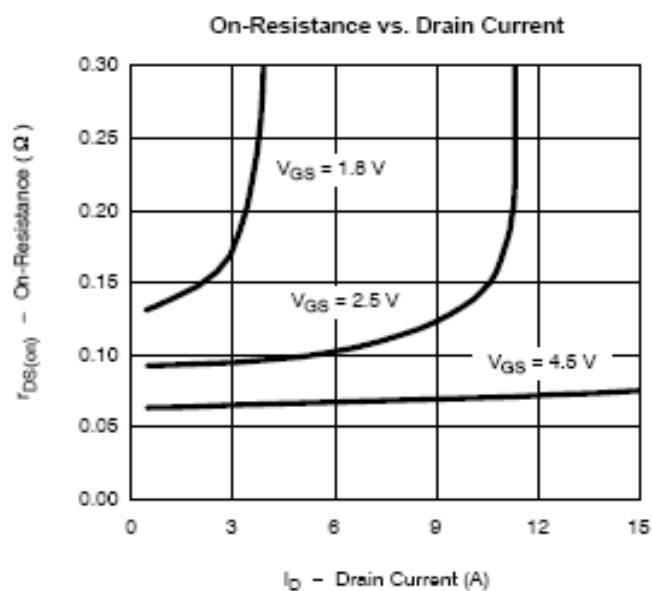
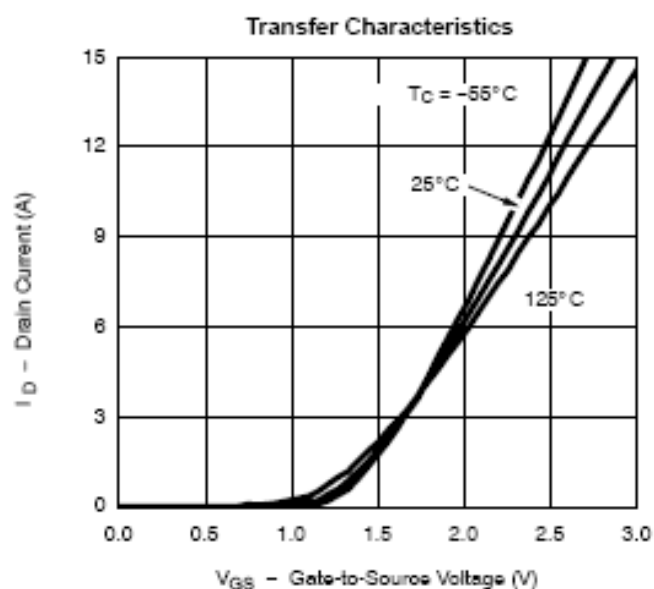
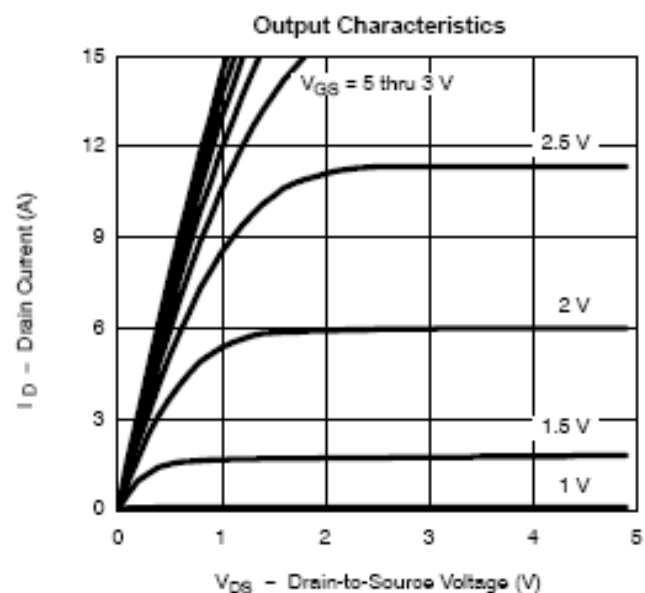
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250uA	-20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-0.35		-0.8	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	uA
		V _{DS} =-20V, V _{GS} =0V T _J =55°C			-5	
On-State Drain Current	I _{D(on)}	V _{DS} ≤ -5V, V _{GS} =-4.5V	-6			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-3.4A		0.076	0.095	Ω
		V _{GS} =-2.5V, I _D =-2.4A		0.097	0.120	
		V _{GS} =-1.8V, I _D =-1.7A		0.123	0.145	
		V _{GS} =-1.25V, I _D =-1.0A		0.185	0.210	
Forward Transconductance	g _{fs}	V _{DS} =-5V, I _D =-2.8A		6		S
Diode Forward Voltage	V _{SD}	I _S =-1.5A, V _{GS} =0V		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =-6V, V _{GS} =-4.5V I _D =-2.8A		4.8	8	nC
Gate-Source Charge	Q _{gs}			1.0		
Gate-Drain Charge	Q _{gd}			1.0		
Input Capacitance	C _{iss}	V _{DS} =-6V, V _{GS} =0V f=1MHz		485		pF
Output Capacitance	C _{oss}			85		
Reverse Transfer Capacitance	C _{rss}			40		
Turn-On Time	t _{d(on)}	V _{DD} =-6V, R _L =6Ω I _D =-1.0A, V _{GEN} =-4.5V R _G =6Ω		10	16	ns
	t _r			13	23	
Turn-Off Time	t _{d(off)}			18	25	
	t _f			15	20	



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TYPICAL CHARACTERISTICS

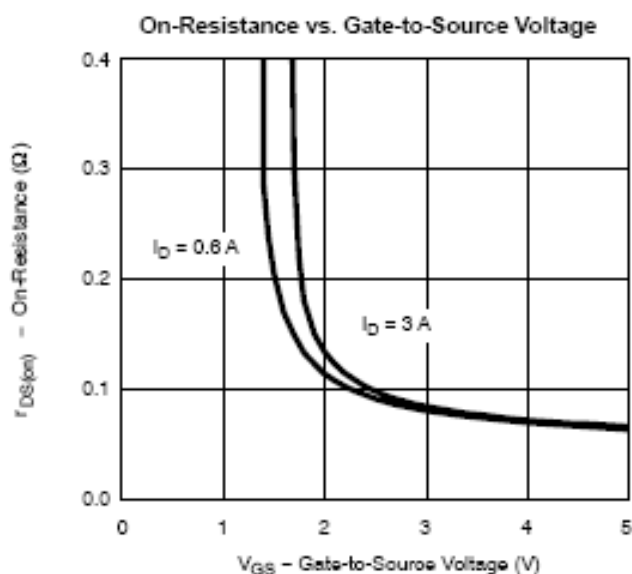
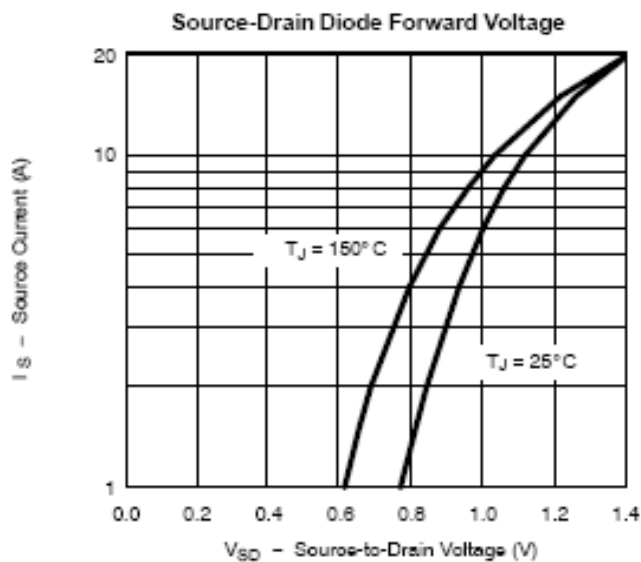
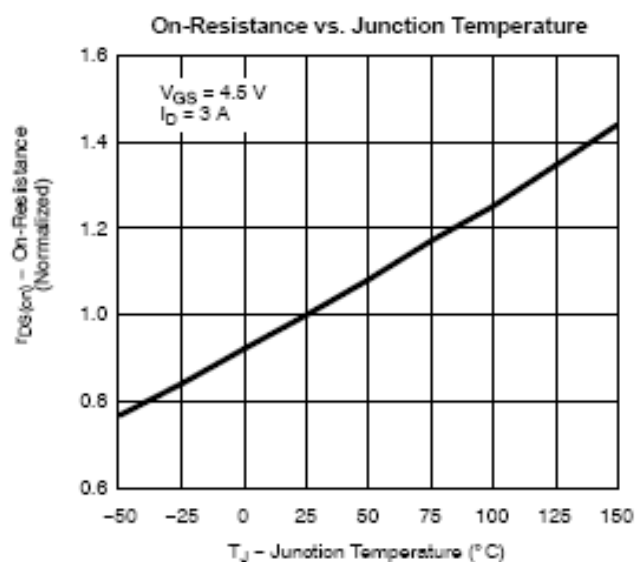
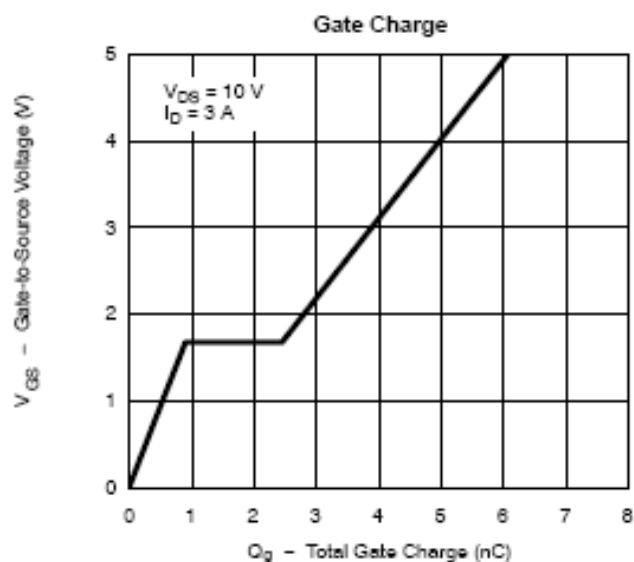




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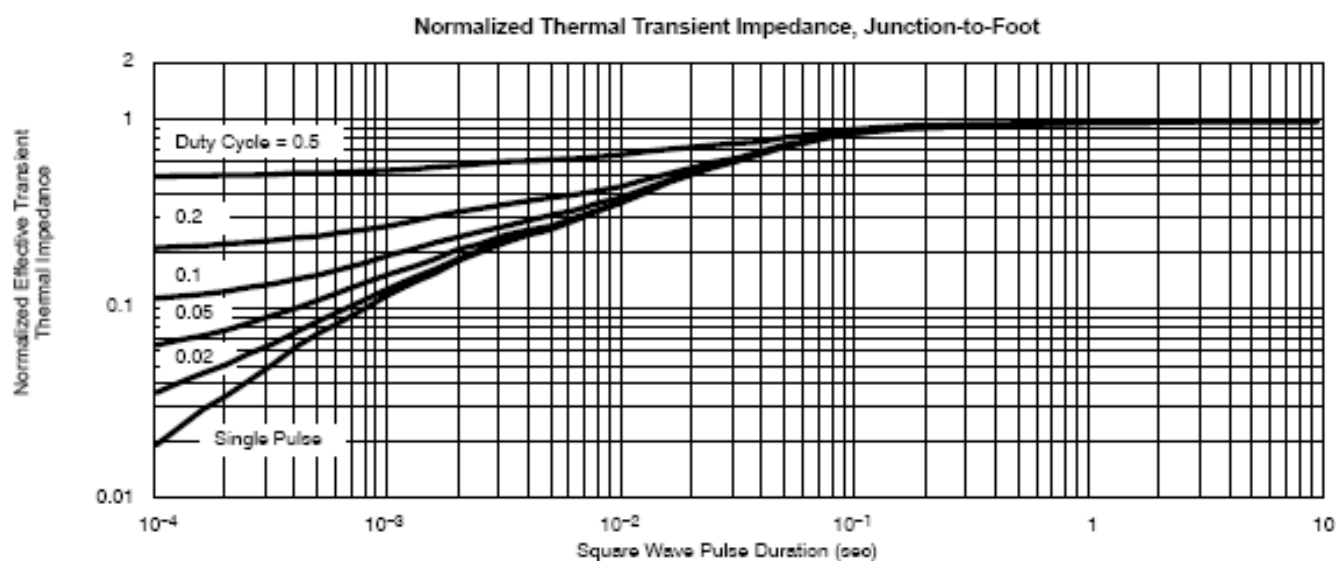
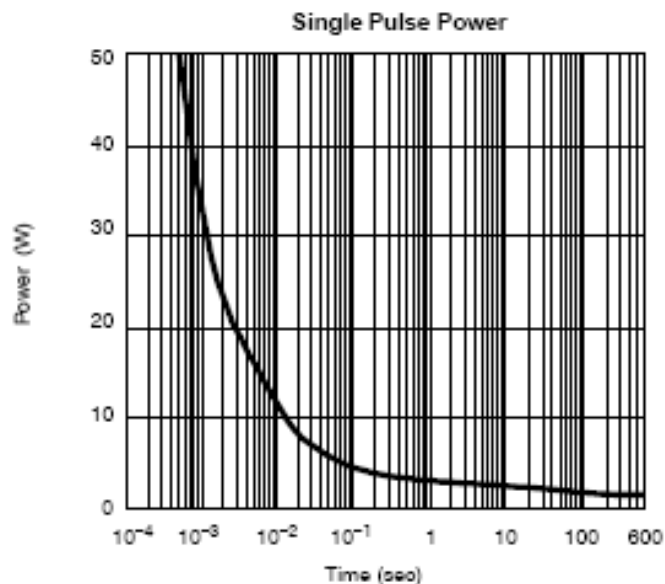
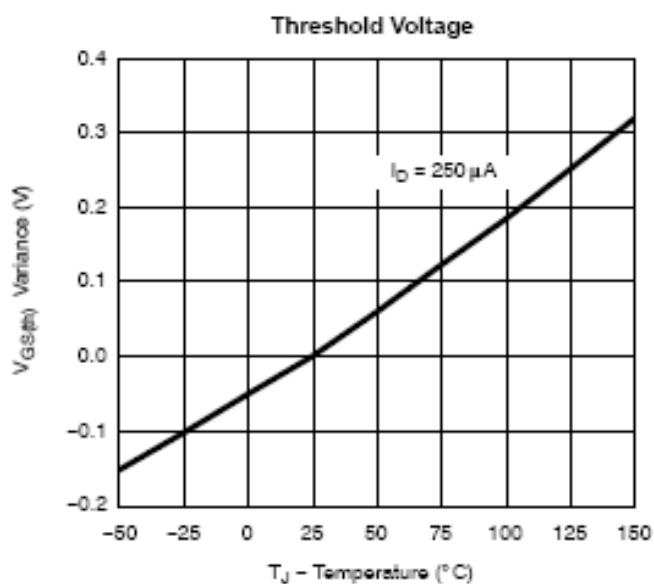




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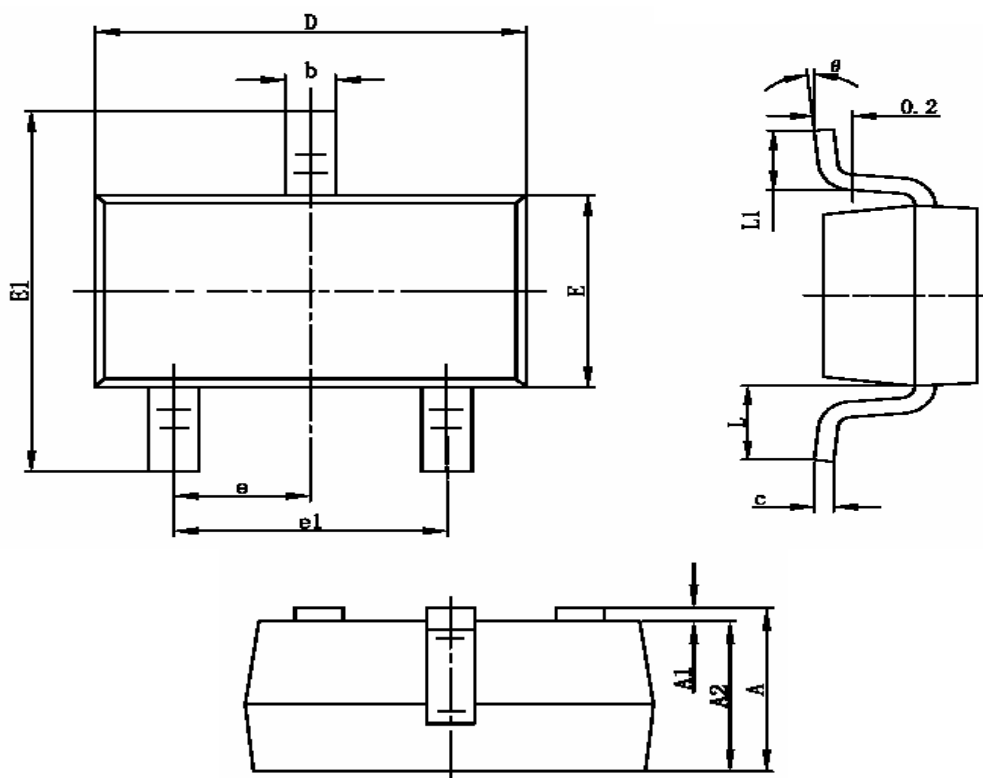




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SOT-23-3L PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.400	0.012	0.016
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.700REF		0.028REF	
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°



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